

(e) A5 is an amino acid sequence of 4 amino acid residues and has the sequence A5<sub>a</sub>-A5<sub>b</sub>-A5<sub>c</sub>-A5<sub>d</sub> (SEQ. ID. NO. 85), wherein A5<sub>a</sub> through A5<sub>d</sub> are independently selected amino acid residues;

(f) A6 is an amino acid sequene;

(g) A7 is an amino acid residue selected from the group consisting of Val and Ile;

(h) A8 is an amino acid sequence of 11 to 12 amino acid residues;

(i) A9 is an amino acid sequence of 5 to 7 amino acid residues; and

(j) A10 is an amino acid sequence;  
wherein each of A2, A4, A6 and A10 has an independently selected number of independently selected amino acid residues and each sequence is selected such that each NAP domain has in total less than about 120 amino acid residues, and wherein the protein has a NAP domain with an amino acid sequence substantially the same as the NAP domain of AcaNAPc2 (SEQ. ID. NO. 59).

271. An isolated protein having anticoagulant activity and having one or more NAP domains, where each NAP domain includes the sequence:

Cys-A1-Cys-A2-Cys-A3-Cys-A4-Cys-A5-Cys-A6-Cys-A7-Cys-A8-Cys-A9-Cys-A10 (FORMULA III), wherein

(a) A1 is an amino acid sequence of 7 to 8 amino acid residues;

- (b) A2 is an amino acid sequence;
- (c) A3 is an amino acid sequence of 3 amino acid residues and has the sequence Asp-Lys-Lys;
- (d) A4 is an amino acid sequence having a net anionic charge;
- (e) A5 is an amino acid sequence of 4 amino acid residues and has the sequence A5<sub>a</sub>-A5<sub>b</sub>-A5<sub>c</sub>-A5<sub>d</sub> wherein A5<sub>a</sub> is Leu, A5<sub>c</sub> is Arg and A5<sub>b</sub> and A5<sub>d</sub> are independently selected amino acid residues (SEQ. ID. NO. 357);
- (f) A6 is an amino acid sequence;
- (g) A7 is Val;
- (h) A8 is an amino acid sequence of 11 to 12 amino acid residues and includes the amino acid sequence A8<sub>a</sub>-A8<sub>b</sub>-Gly-Phe-Tyr-Arg-Asn (SEQ. ID. NO. 79), wherein at least one of A8<sub>a</sub> and A8<sub>b</sub> is Glu or Asp;
- (i) A9 is an amino acid sequence of 5 to 7 amino acid residues; and
- (j) A10 is an amino acid sequence;
- wherein each of A2, A4, A6 and A10 has an independently selected number of independently selected amino acid residues and each sequence is selected such that each NAP domain has in total less than about 120 amino acid residues, and wherein the protein has a NAP domain with an amino acid sequence substantially the same as the NAP domain of AcaNAPc2 (SEQ. ID. NO. 59).

272. An isolated protein having Factor VIIa/F inhibitory activity having a NAP domain with an amino acid sequence substantially the same as the NAP domain of AcaNAPc2 (SEQ. ID. NO. 59).

273. An isolated protein having an amino acid sequence substantially the same as AcaNAPc2 (SEQ. ID. NO. 59).

274. An isolated protein having an amino acid sequence substantially the same as AcaNAPc2/proline.

275. A method of treating a pathologic condition characterized by abnormal thrombosis by preventing or decreasing the abnormal thrombosis which comprises administering a protein of claim 270.

276. A method of treating a pathologic condition characterized by abnormal thrombosis by preventing or decreasing the abnormal thrombosis which comprises administering a protein of claim 271.

277. A method of treating a pathologic condition characterized by abnormal thrombosis by preventing or decreasing the abnormal thrombosis which comprises administering a protein of claim 272.

278. A method of treating a pathologic condition characterized by abnormal thrombosis by preventing or decreasing the abnormal thrombosis which comprises administering a protein of claim 273.

279. A method of treating a pathologic condition characterized by abnormal thrombosis by preventing or decreasing the abnormal thrombosis which comprises administering a protein of claim 274.

280. A method according to any one of claims 275 to 279 wherein said pathologic condition is disseminated intravascular coagulopathy.

281. A method according to any one of claims 275 to 279 wherein said abnormal thrombosis occurs in the venous vasculature of patients undergoing major surgery in the lower extremities or abdominal area.

282. A pharmaceutical composition comprising a protein of any one of claims 270 to 274 and a pharmaceutically acceptable carrier.

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